STATE OF INDIANA – DATA COLLECTION REPORT

August 25, 2015

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BACKGROUND AND INTRODUCTION

New federal legislation promises the development of an interoperable National Public Safety Broadband Network (NPSBN). The network will be provided by a new federal agency ("FirstNet") which will design, propose, construct, operate and maintain a radio access network ("RAN") within the State of Indiana and across the nation.

The network will utilize fourth generation commercial cellular technology known as LTE (Long Term Evolution) and will be comprised of multiple RANs to be deployed in each state and a common management and switching component known as a Core. The RANs will be constructed and managed either by FirstNet or by the respective states in an "Opt-Out" scenario, if they choose and are approved to do so. Irrespective of whether the RAN is deployed by FirstNet or a state, all RANs will be required to meet minimum requirements in order to maintain nationwide interoperability. The Core will be deployed and operated by FirstNet.

The National Telecommunications and Information Administration (NTIA) have established a grant program known as the State and Local Implementation Grant Program (SLIGP). This grant is to be used to assist state, regional, tribal, and local jurisdictions in determining the most efficient and effective way to utilize and integrate the NPSBN in order to satisfy their wireless communications and data services needs and to prepare for and participate in the state's consultation with FirstNet.

In March of this year, FirstNet issued a request to states to collect information related to public safety broadband activities and needs, which will be used to inform FirstNet's acquisition process as well as provide inputs in developing state plans.

FIRSTNET CONSULTATION

The law that established FirstNet requires it to consult with Federal, State, tribal, and local public safety entities to ensure that the FirstNet network is designed to meet the needs of public safety across the country. Indiana's Initial Consultation meeting with FirstNet will occur on August 26, 2015.

In order to prepare for this meeting, retained the services of Michael Baker International (Michael Baker) to facilitate focus groups and analyze existing data. These activities form the basis for this report.

The purpose of this report is to:

- Inform FirstNet of the planning activity performed by the State;
- Provide useful data for FirstNet to incorporate in their upcoming comprehensive RFP;
- Inform FirstNet of the State's ongoing activities and future data requirements plans;
- Receive feedback from FirstNet regarding their data collection process and plans.

The initial consultation meeting is in fact just the beginning of the consultation process and more information sharing will occur between the State and FirstNet at subsequent meetings over the next 12 to 18 months. Indiana will continue the planning, data collection and data requirements process during the consultation period.

It is important to note that this report contains data gathered up until August 24, 2015. Data submitted after this date will be included in future submissions to FirstNet.

DATA COLLECTION AND ANALYSIS METHODOLOGY

To get an accurate representation of the potential user population and usage patterns for public safety broadband across the State, a two-pronged approach to data collection was developed. The IPSC identified the list of Public Safety Entities (PSE) throughout the State, notified them of the request for data, and directed them to the PublicSafetyTools website to fill out the on-line Mobile Data Survey Tool (MDST). The Michael Baker team developed an instruction sheet to assist the PSEs in accessing and completing the survey. The MDST tool was developed by the Department of Homeland Security specifically to collect the data requested by FirstNet.

After an initial project period had passed, survey results were downloaded to begin analysis and draw initial conclusions from the data.

In addition to the data collected from the MDST responses, the Michael Baker team conducted a series of four (4) focus group meetings across the State – collecting data from Public Safety stakeholders in three different geographies. The data collected from the focus group meetings is being used to validate data previously collected in CASM, to augment the data from the MDST and to identify specific areas which may require further investigation and analysis.

Focus Group Meetings

A total of four focus group meetings were conducted in Indiana by the Michael Baker team. Meetings consisted of three regional meetings in three geographic areas to maximize participation from the local and county Public Safety community:

- Seymour – Southern Indiana
- Indianapolis – Central Indiana
- Peru – Northern Indiana

A fourth focus group meeting was held in Indianapolis for Indiana state agencies.

A summary of each meeting, attendee lists, and the notes and comments from each meeting are included in Appendix A.

Data Analysis Methodology

Following completion of the focus group meetings, the Michael Baker team began analyzing the data and information collected. This analysis includes:

- Review and summary of the results from the MDST, including a graphical representation of the following items:
    - Number of users and agency-issued devices, by discipline for
        - Emergency Management Agencies
        - Emergency Medical Services

        - Fire and Rescue Agencies
        - Highway and DOT
        - Hospitals/Medical Facilities
        - Law Enforcement Agencies
        - Military
        - Public Health
        - Public Safety Communications
        - Other/Private
    - An extension of the responses to the statewide public safety community
- Current procurement practices
- Current stated barriers to further adoption
- Application usage and summary
    - An estimate of the data capacity required to meet the needs of the MDST respondents and an extension to the statewide public safety community
- A graphical representation of baseline coverage recommendations from FirstNet and an initial analysis of those recommendations.

The results of this analysis are provided in this report.

DATA ANALYSIS FINDINGS

User Demographics

As of August 24, 2015, 87 agencies across the state submitted responses in the Mobile Data Survey Tool. A breakdown of the response, by organization type is shown in the Figure 1 below. Figures 2, 3 and 4 display the total number of first responders, the number volunteers included in the total and the number of first responder vehicles included in the responses[1].

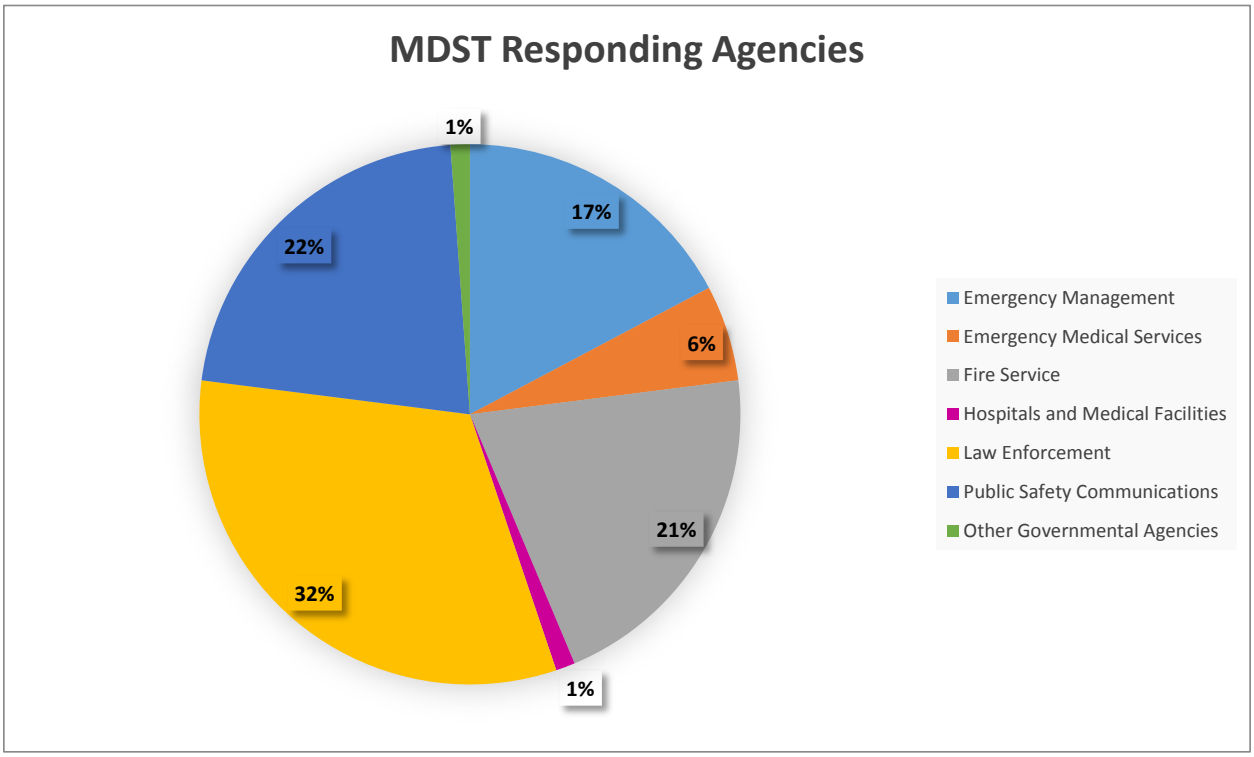

Figure 1: MDST Responding Agencies

[1] Detailed analysis of the MDST data is based on 75 responses – received prior to 8/24/15.

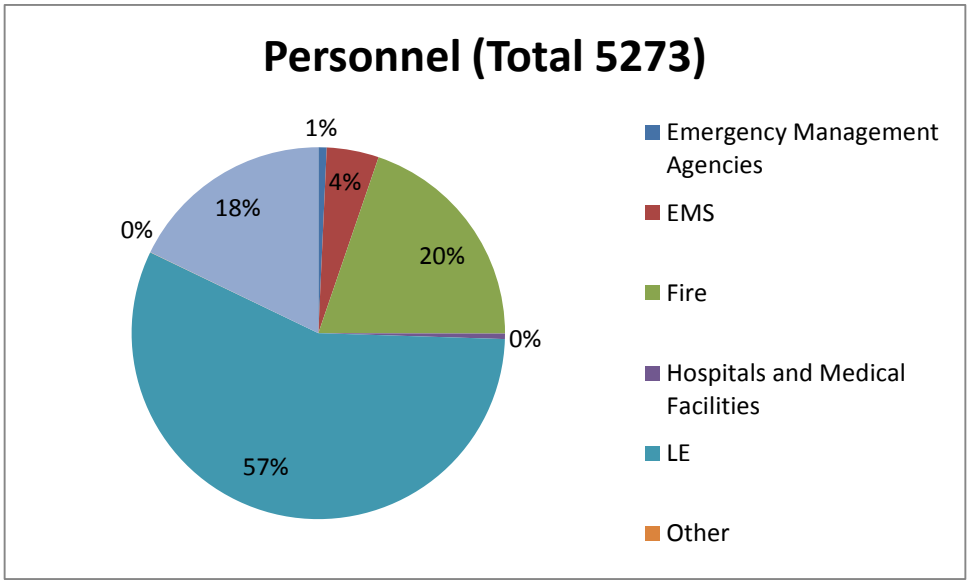

Figure 2: MDST First Responders

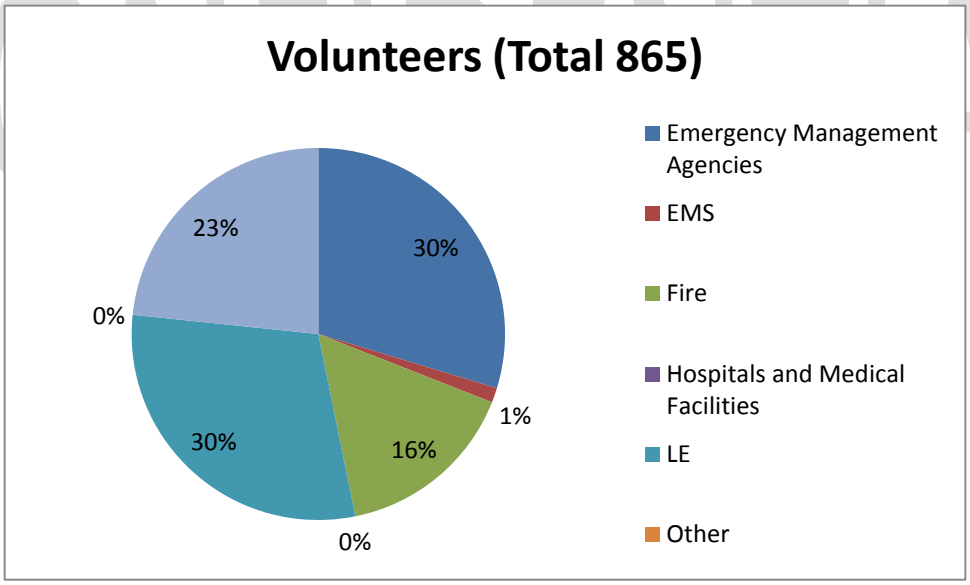

Figure 3: MDST Volunteer Responders

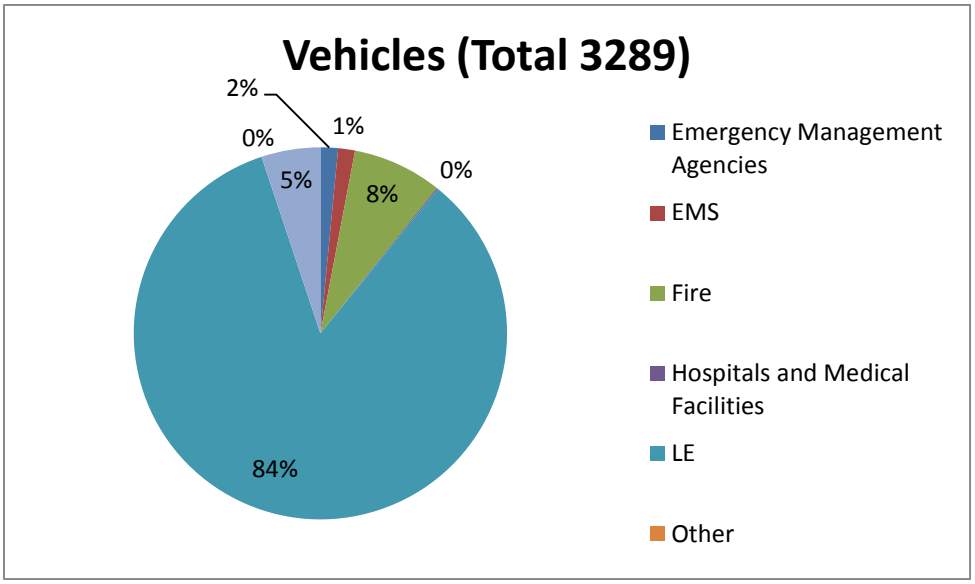

Figure 4: MDST Vehicles

Based on the results, the responses are dominated by Law Enforcement as the largest responding agency, specifically, the Indiana State Police. Their response also accounts for the large number of vehicles included in the response data. Regardless of this large response from the State Police, there remained a good distribution of different public safety disciplines responding to the survey.

The demographics from the focus group meetings are shown in the following Figures 5 and 6:

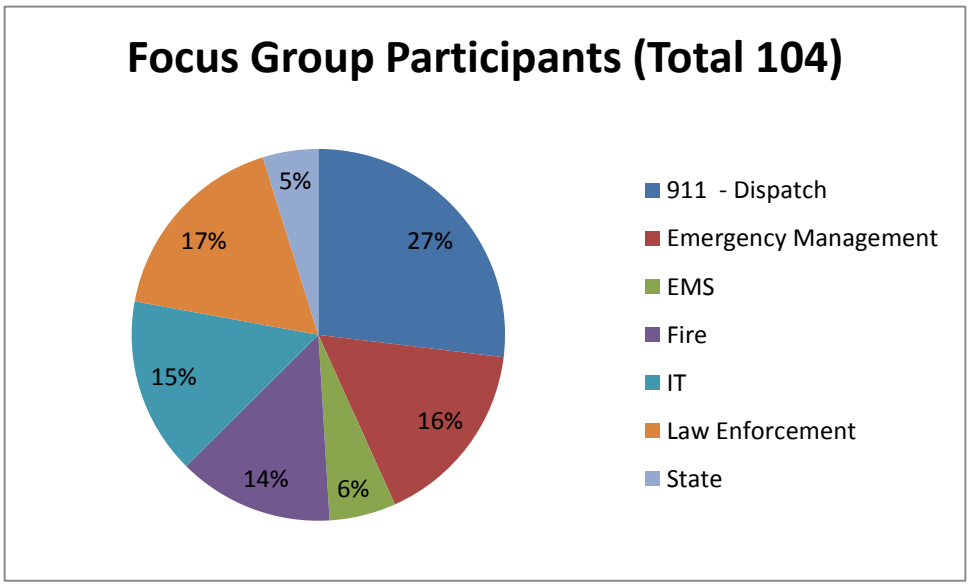

Figure 5: Focus Group Participants (By Discipline)

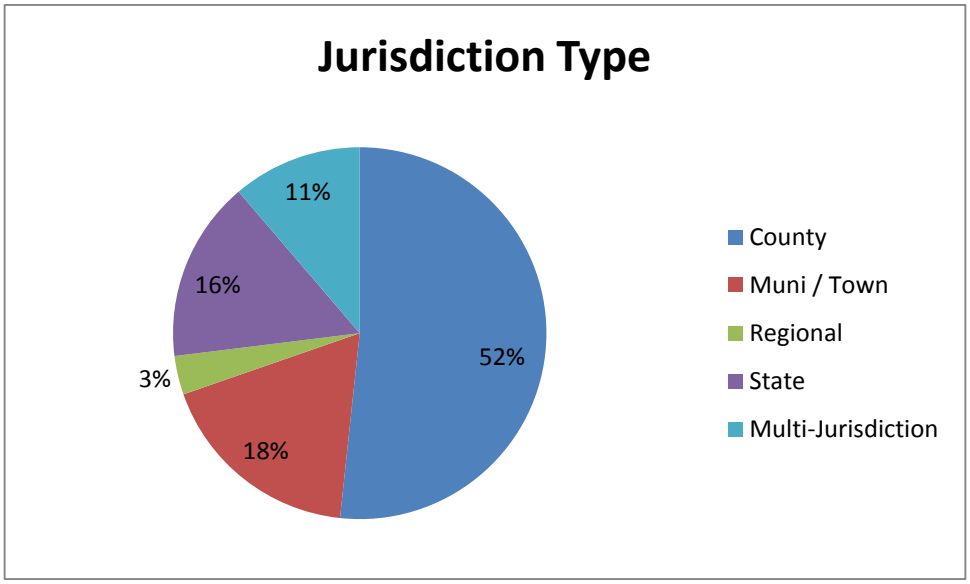

Figure 6: Focus Group Participants (By Jurisdiction)

Based on both discipline and jurisdictional type, the information above shows good distribution for the focus groups.

Devices

MDST Responses

An analysis of the MDST responses was done to explore the penetration of broadband devices with public safety users. The table below shows the breakdown of users by discipline and the number of agency-issued devices reported. The column to the right calculates the average number of devices per user for each discipline.

Discipline	Users	Devices	Device/User
EMA	38	124	3.26
EMS	238	138	0.58
Fire	1044	509	0.49
Hospitals and Medical Facilities	25	6	0.24
LE	2987	5061	1.69
Other	1	1	1.00
PS Comms	940	391	0.42
TOTALS	**5273**	**6230**	**1.18**

The data shows the device/user figure varying substantially across disciplines, with Emergency Management Agencies (EMA) having a very high average (3.26). This number may be an anomaly since the data is based on a relatively small number of users. Additionally, the number of devices/user for law enforcement is quite high as well (1.69). This is likely due to the fact that many users may have both a handheld device and a vehicle-based device in their vehicle. As noted earlier, a large portion of the law enforcement response came from the Indiana State Police. Therefore, the law enforcement device/user number may decrease some when additional smaller agencies are taken into account.

The overall device/user figure for the sampling came to 1.18 devices/user, which is slightly higher than similar statistics seen to date, but is not unreasonable. Also, it is important to note that the data collection results are only at an early stage in most states.

As a comparison data point, slightly less than 50% of all focus group participants were carrying an agency-issued device. It is also important to note the trend among local focus group participants and in four of the five state agencies we met with regard to the **use of multiple devices** to perform several aspects of their weekly work function. Multiple device usage is already taking place and commonplace in the Indiana Public Safety community (agency device/personal device, two personal devices, use of multiple/different device types) and with employees in the thousands, and with work scope including public safety responsibilities, there is very good reason for IPSC to more thoroughly identify device and application trends among state agencies in order to accurately tabulate user populations at the agency level.

The three lowest ratios in the table by discipline are from Hospitals/Medical Facilities, Public Safety Communications, and Fire. The number for Hospitals/Medical Facilities is not surprising because hospitals typically do not have many individual users who will communicate directly with first responders. The low number for Public Safety Communications is not surprising at this time, however this is expected to increase significantly when Next Generation 9-1-1 becomes implemented more widely. The relatively low number for Fire is consistent with early numbers reported in other states. This is generally due to the fact that a large number of fire-fighters are volunteers and work on an extremely tight budget, which generally does not allow for agency issued devices. However, as will be discussed in a subsequent section, it is expected that a large number of these users will arrive on scene with their personal device.

Estimated Number of Devices Statewide

With the information gathered from the data sampling using the MDST, and the information contained within the State's Communications Asset Survey and Mapping (CASM) tool, an estimated number of public safety user devices that could utilize the Nationwide Public Safety Broadband Network can be calculated. The table below displays the total number of public safety personnel captured in the CASM database, by discipline, and estimates the total number of broadband devices that would be used statewide, given the device/user figures calculated for each discipline from the MDST responses. It must be noted that several disciplines do not have personnel numbers in the CASM database. This includes three disciplines (EMA, Hospitals, and PS Comms), which did have agencies that responded to the MDST data request. In these cases, only those users represented by the MDST responses have been captured. It is recommended that the IPSC concentrate further data collection activities to these disciplines in order to fill in these unknowns.

Discipline	# of Personnel (CASM)	# of Extended Devices
EMA*	38	124
EMS	4057	2352
Fire	24408	11900
Hwy/DOT	0	0
Hospitals*	25	6
LE	12279	20805
Military	0	0
Other (Am Radio)*	1	1
Public Health	0	0
PS Comms*	940	391
TOTALS	**41748**	**35579**

Table of Estimated Devices
(* Includes data from MDST only)

The Use of Personal Devices

One area of questioning in the MDST and an area the Michael Baker team believes to be of key importance is the use of personal devices by first responders. The survey asked users if they are permitted to use their personal devices for a work function and if they are permitted to access their agency's network with their personal device. Over 70% of respondents, both from the MDST and the in the focus groups responded positively to the first question, and as least half of the respondents also answered positively to the second question. A bar graph of the responses is shown on the next page in Figure 7.

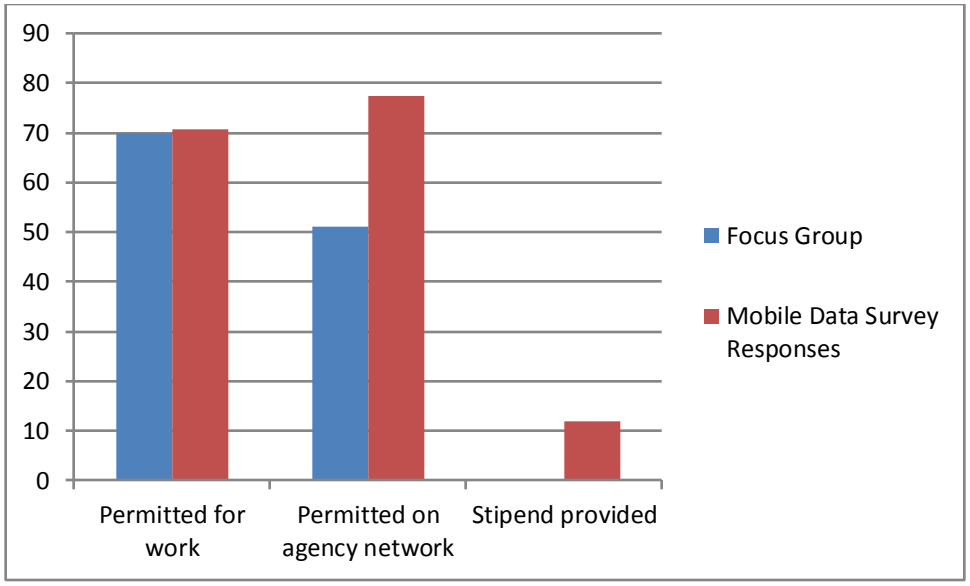

Figure 7: The Use of Personal Devices by First Responders

A key take-away from the focus group sessions was the need for FirstNet to develop a Bring Your Own Device (BYOD) approach for the new network, with a supporting policy that will allow authorized users to utilize the NPSBN with their personal device. It is clear from the data that First Responders are actively utilizing personal devices frequent today. One comment from the MDST was:

> *"Almost all employees are using at least personal cell phones and some are also using personal tablets. Loss of the use of these devices would impact operational capabilities."*

Additionally, users in the focus groups noted that two of the most important issues for FirstNet to address are the use of personal devices and the economic benefits users receive today with family plan service packages.

In order to gauge the impact of personal devices, the Michael Baker team further analyzed the total number of estimated broadband devices within Indiana that would be eligible for use on the NPSBN. This was done by taking into account the number of personnel in the disciplines of EMS, Fire, and PS Comms, who currently have a relatively low device/user ratio and who indicated on their survey responses that their membership includes volunteer first responders. The total number of potential devices was then updated assuming that the majority of the uses (90%) who operate in agencies that permit personal device use would utilize their device on the NPSBN. The result of this analysis is shown in the table below. The inclusion of personal devices by those users, who do not have agency-issued devices today, increased the total potential number of devices in the State from 35579 to 44968. IPSC should give strong consideration to sharing this analysis with FirstNet.

Discipline	# of Personnel	# of Extended Devices
EMA*	38	124
EMS	4057	3437
Fire	24408	19855
Hwy/DOT	0	0
Hospitals*	25	6
LE	12279	20805
Military	0	0
Other (Am Radio)*	1	1
Public Health	0	0
PS Comms*	940	740
TOTALS	**41747**	**44968**

Table of Estimated Devices Including Personal
(* Includes data from MDST only)

Procurement Practices and Barriers

The MDST also asked a number of questions about the procurement practices that the agencies follow. FirstNet has requested this data to help them determine how to best sell to first responders within the State and how to maintain an effective relationship. The result of the survey responses in this area is summarized in the table on the following page[2]. Some of the key takeaways that the Michael Baker team recommends the IPSC highlight to FirstNet are:

- A high percentage of agencies greatly prefer an unlimited/fixed-rate plan;
- Agencies across the State currently use a variety of procurement vehicles for broadband services and some have multiple procurement options;

[2] Percentages are based on the number of respondents who answered these questions.

- Several agencies reported that their current provider utilizes a private network for the connection back to their PSAP.

Practice	Agencies Responding Positively (MDST) (%)
Using Multiple Providers	42
Using Paging	48
Using a Master Contract	30
Using a Local RFP/Bid	27
Direct Sale Account	67
Direct Tech Support	56
Special Services	27
Pay for Fixed Rate Plan	73
Agency Pays for Service	83
Unlimited Data Plan	71

Additionally, agency concerns regarding barriers to broader adoption of public safety broadband services were recorded from the MDST survey. These concerns are shown in the bar graph on the following page (Figure 8), where cost was the most commonly cited barrier and reliability and coverage also proving to be significant barriers[3].

[3] These percentages are based on the number of respondents who answered these questions.

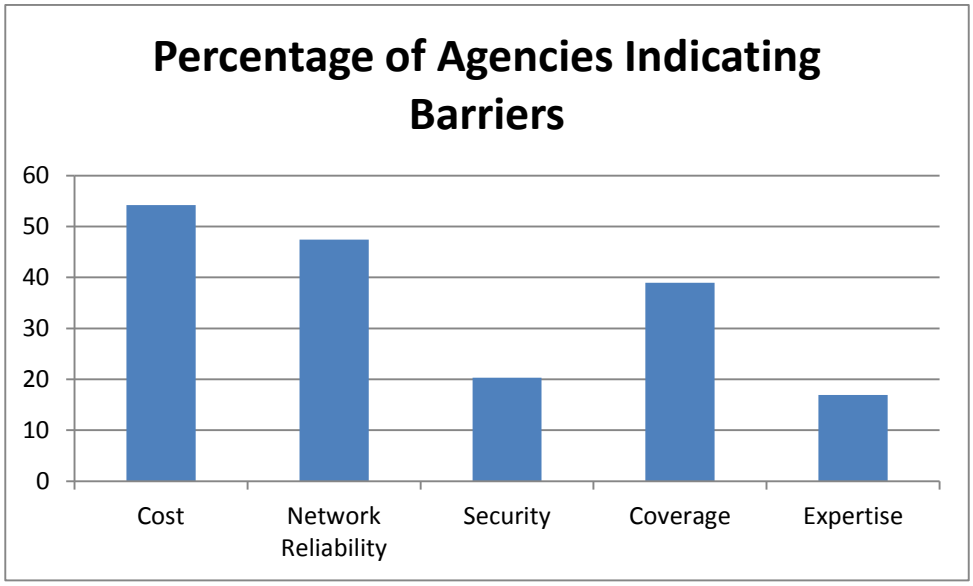

Figure 8: Barriers to Adoption

Specific FirstNet Questions

During each of the focus group meetings, the three questions noted below were presented in order to identify service attributes for existing providers, to gauge how receptive each audience was for moving to a new public safety network, and identifying the key elements for local jurisdictions to move their current service to FirstNet when the service becomes available. The questions were presented far into each focus group session so each audience could contextualize FirstNet background information, hear stakeholder input on current public safety **users/uses/usage** and the proposed network, and to listen to group feedback on current service from some of the 16 commercial service providers identified during the meetings.

Among the three local public safety stakeholder groups **fixed data plans**, **unlimited data**, and **overall cost of service** were the most consistent choices for current service selection or for consideration when selecting a new service provider, although many more root issues were identified leading stakeholders to these choices. In the Seymour focus group, it took well over five minutes of discussion with stakeholders during this meeting segment before pricing was mentioned directly. Regardless, much of the input, answers, and explanations from the stakeholders supported these three choices.

What do you like about your current service?

What could FirstNet offer to improve on your current service?

What would make your agency become a FirstNet Subscriber?

Some of the specific responses from the participants are shown below:

- Fixed Price Data Plans
- Overall Cost of Service
- Unlimited Data
- Different Service Plans, Choices
- Coverage Throughout Jurisdiction
- Good Customer Service – Availability and Access
- Network Security
- Receive New or Upgraded Devices from Providers Free
- Guaranteed Performance
- Static IP Addressing
- VPN Services Unlimited
- Network Notifications
- Easy to Deploy Devices
- Ease of Outage Reporting
- Offer Stable and Consistent Pricing
- Make Better Applications part of the Service
- Offer a Central Data Repository in Indiana for Public Safety
- Apply VOST Concept to Statewide Operations (Shared Services)
- Offer "No Contract Pricing"
- Offer COWS or other technology for Special Events
- Make more Data and Capacity Available When Needed
- Have Existing or Legacy Devices Access and Operate on the New Network

In all, 11 key attributes were service related, eight were technology related and two associated with devices. Three attributes had multiple relationships with service, technology or devices.

After pricing, **jurisdictional coverage**, **pricing stability & consistency** and **good customer service** were generally seen as very critical to a FirstNet offer and for considering a move to a new network. Several stories about current service and network limitations (ie: data caps, over charges, coverage, interoperability) led groups to generally agree that any new service that offers commercial pricing schemes, incomplete network coverage, or a network with limited in-jurisdictional or neighboring jurisdictional reach would not be of any value or compel a change from current service.

Additionally, some of the issues that FirstNet needs to address, as cited by the participants are listed below.

- Personal device access/use of new network
- "Family Plan" users -- PS cost, Family Plan cost

- Command structure for device access to network during different scenarios
- Priority of Service / First Responder access during different scenarios
- Device access during changes in employment – leaving Public Safety
- Future Network Access / Permissions / Preemptions
- Phase-in period coverage issues – between early phase and last phase areas
- Length of phase-in period
- Coverage of Legacy Devices
- Jurisdiction-Deployed Micro Cells at Local Levels

Current Applications

Another key component of the MDST was a request for the agencies to document their use of current broadband applications. A total of eleven different types of application were identified on the survey. The use of some of the application types was also confirmed during the focus group sessions. The percentage of responding agencies that indicated either weekly or daily usage of the specific types of applications is shown in the table below. It can be seen that for the most part, data that was available from the focus group meetings agreed with the data collected from the MDST. The one exception was the communications application type, which showed significantly less participation from the focus group participants.

Application Type	Agencies Using (MDST) (%)	Agencies Using (Focus) (%)
Connectivity	88	83
Communications	87	45
CAD	79	
Intranet/VPN	73	
Database	68	
Location/Mapping	65	61
Reporting	64	
AVL	32	
Video	23	28
VoIP	20	30
Telemetry	17	

Coverage and Capacity

Two of the most important technical aspects of a wireless data communications system are the coverage and capacity that it will provide. Specifically, with an LTE broadband data network design, these two factors are very tightly coupled and must be considered together during the design process. Therefore, the user requirements information to be provided to FirstNet during the consultation process, must include both coverage and capacity requirements.

While the initial consultation meeting with FirstNet will not delve very deeply into coverage or capacity, FirstNet will introduce the State to the process and begin the discussion.

Coverage

To begin the discussion on coverage, FirstNet generated public safety concentration area maps using a one mile by one mile grid based on the following data:

- Public safety user population;
- Public safety high risk/areas of interest;

- US population;
- Developed areas/buildings;
- Roadways (and other transportation): Includes roads and highways; commercially navigable waterways; railroads; transit links.

The maps display three different concentration levels (Low (green), Moderate (blue), and High (red)). An image of this data as provided by FirstNet is shown below in Figure 9. The recommendation from FirstNet is that any grid covered by any of the three colors should have terrestrial-based coverage from the NPSBN. Areas that appear gray and do not have one of the three colors will receive coverage via either deployable or satellite (non-terrestrial) coverage. This data is referred to as the Baseline Coverage Recommendations.

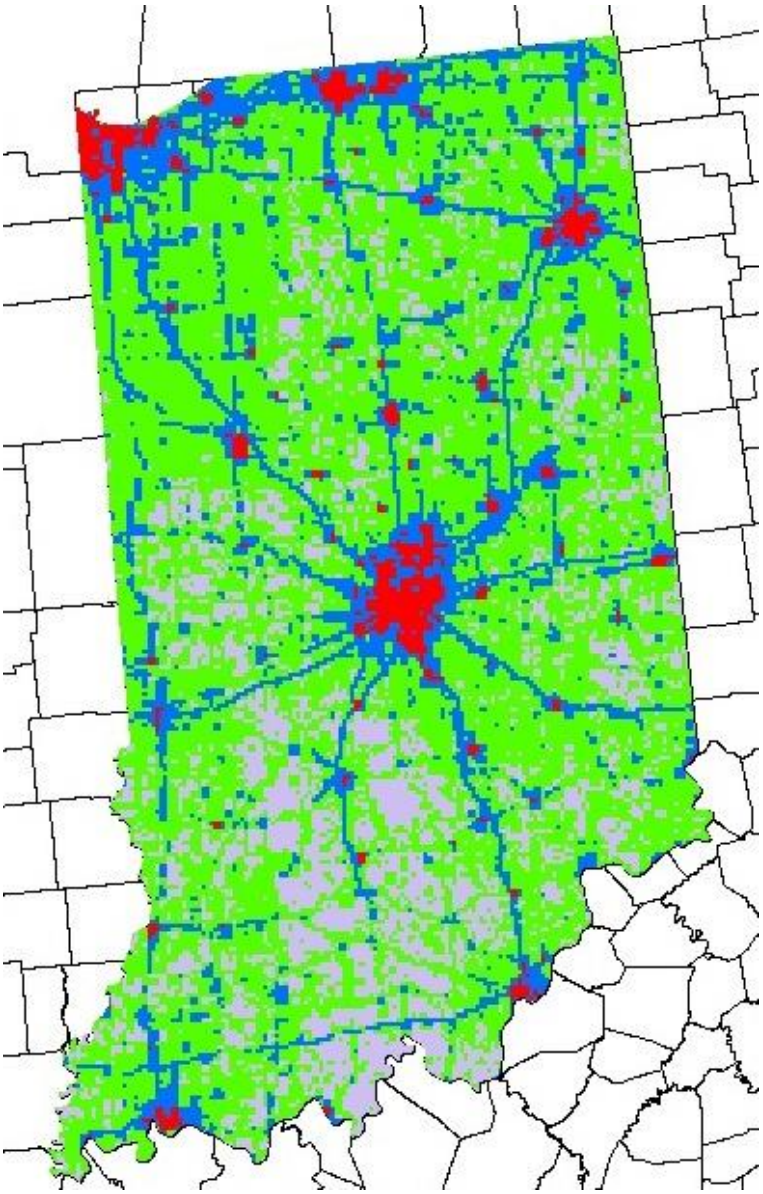

Figure 9: Baseline Coverage Recommendations

Following the initial consultation, IPSC will continue to gather coverage feedback from county, local and state entities using the Baseline Coverage Recommendations. The Michael Baker team has done an initial analysis of the Baseline Coverage Recommendations at the county level. The table below reflects the **proposed coverage** recommendations for the future FirstNet network for each county:

Name	Terrestal Coverage	Name	Terrestal Coverage	Name	Terrestal Coverage
Adams	93.46%	Hendricks	90.30%	Pike	64.15%
Allen	99.84%	Henry	86.28%	Porter	99.33%
Bartholomew	92.30%	Howard	98.43%	Posey	78.66%
Benton	98.74%	Huntington	87.89%	Pulaski	89.80%
Blackford	69.38%	Jackson	64.99%	Putnam	70.86%
Boone	82.10%	Jasper	99.38%	Randolph	71.66%
Brown	37.36%	Jay	80.76%	Ripley	76.31%
Carroll	79.76%	Jefferson	66.77%	Rush	75.79%
Cass	78.02%	Jennings	66.90%	Scott	71.03%
Clark	86.36%	Johnson	99.86%	Shelby	93.12%
Clay	88.00%	Knox	75.54%	Spencer	64.95%
Clinton	76.74%	Kosciusko	88.39%	St. Joseph	99.55%
Crawford	47.78%	LaGrange	98.43%	Starke	88.80%
Daviess	81.76%	Lake	99.92%	Steuben	97.58%
Dearborn	87.68%	LaPorte	99.08%	Sullivan	73.06%
Decatur	93.95%	Lawrence	54.60%	Switzerland	81.77%
DeKalb	79.03%	Madison	98.60%	Tippecanoe	94.07%
Delaware	92.67%	Marion	100.00%	Tipton	87.00%
Dubois	70.83%	Marshall	88.44%	Union	67.48%
Elkhart	100.00%	Martin	41.58%	Vanderburgh	99.85%
Fayette	75.95%	Miami	88.75%	Vermillion	97.12%
Floyd	98.65%	Monroe	69.40%	Vigo	95.07%
Fountain	62.19%	Montgomery	67.92%	Wabash	81.71%
Franklin	59.87%	Morgan	78.44%	Warren	98.71%
Fulton	70.72%	Newton	98.88%	Warrick	87.07%
Gibson	75.59%	Noble	91.29%	Washington	41.92%
Grant	95.15%	Ohio	89.34%	Wayne	87.71%
Greene	52.09%	Orange	45.04%	Wells	80.15%
Hamilton	99.53%	Owen	47.25%	White	96.32%
Hancock	95.92%	Parke	58.91%	Whitley	89.56%
Harrison	49.66%	Perry	32.24%		

The Michael Baker team notes that a number of the counties are below 60% and some are even below 40%. These are areas that warrant specific review.

An additional methodology that may aide in the coverage review is to break down the Baseline Coverage Recommendations into individual layers of coverage. The following Figures (10, 11, and 12) show the High, Medium, and Low concentration areas separately. In addition, Figure 13 shows the full extent of the **proposed FirstNet** coverage with a single color for easier viewing.

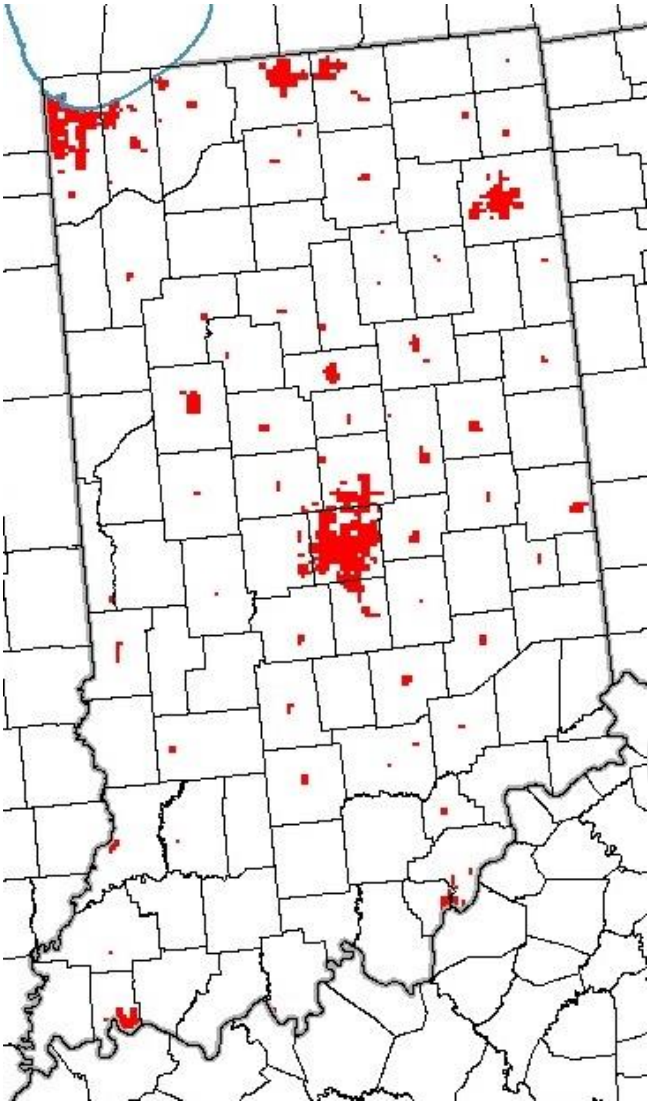

Figure 10: High Concentration

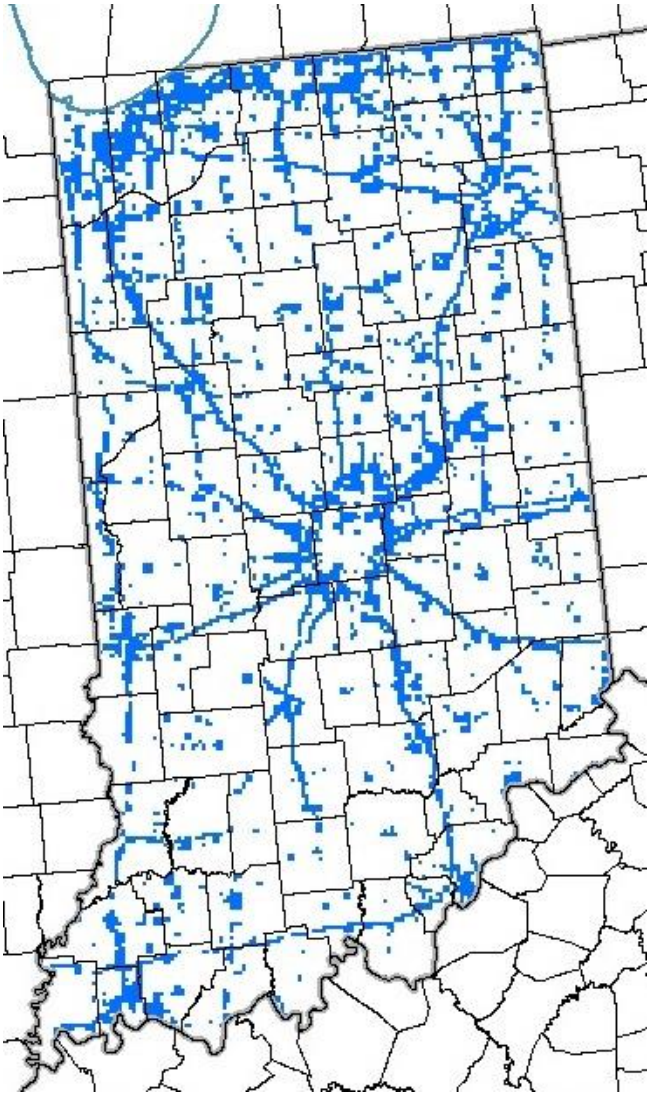

Figure 11: Medium Concentration

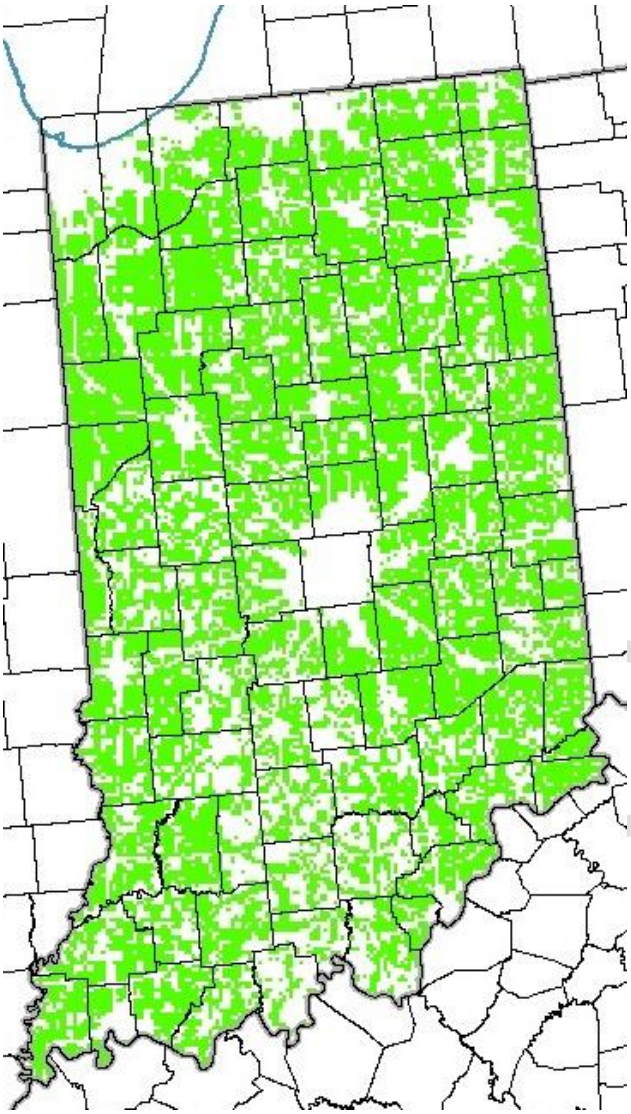

Figure 12: Low Concentration

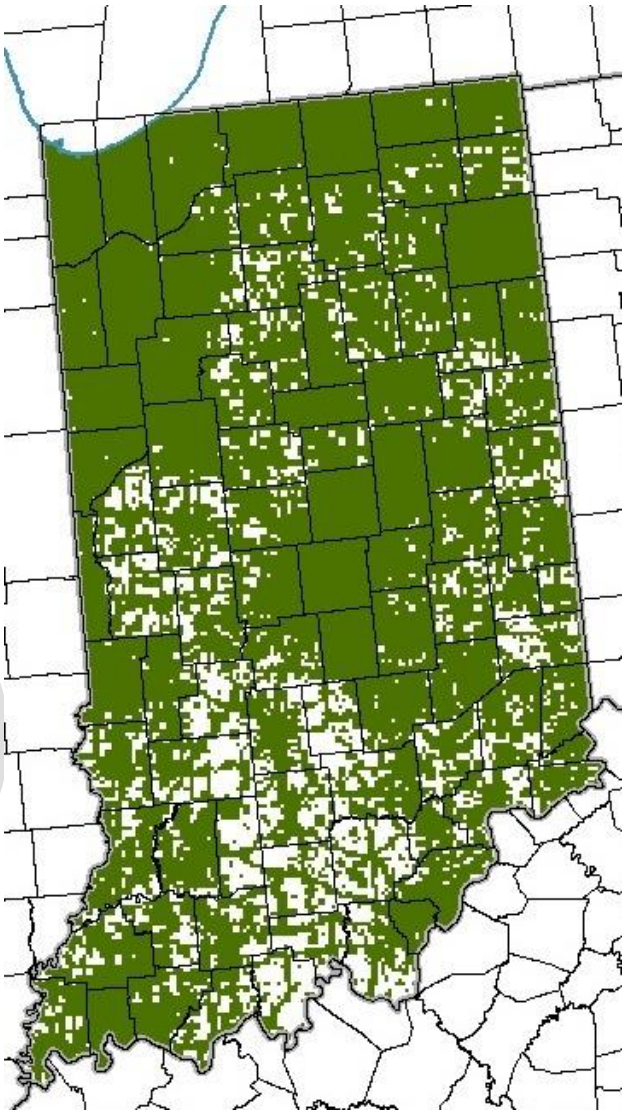

Figure 13: All FirstNet <u>Proposed</u> Coverage

Again, the Michael Baker recommends IPSC perform additional analysis of the Baseline Coverage Recommendations to prepare for further consultations with FirstNet. Some specific recommendations include:

- Review recommended terrestrial coverage areas on a regional and county-by-county basis;
- Solicit local input on coverage requirements;
- Compare Baseline Coverage Recommendations with PSAP incident data;

- Identify special events which result in extra coverage and/or capacity requirements;
- Develop recommendations for phased deployment;
- Incorporate capacity requirements based on application usage and high-activity areas with a regional analysis;
- Develop a .shp file for communicating coverage and capacity needs to FirstNet.

Capacity

As discussed earlier, coverage and capacity are performance items that are very tightly coupled in a broadband LTE design. The capacity needs of the users must be accurately compiled and mapped across the State, in order to provide the required input into the network design process, to ensure that the proposed network plan for the State will the needs of its first responders. The application usage results received to date from the MDST provides a good start to establish the capacity requirements. Michael Baker analyzed the responses and summarized the percentage of agencies, by discipline, using each type of application. Application usage was then translated into a cumulative broadband datarate requirement based on the number of devices by disciple predicted to be using each application and the typical datarate required to support each application. The results of this calculation for MDST respondents are shown below:

Application Type	Agencies Using (MDST) (%)	Cumulative Datarate (Mb/s) Requirement MDST (Uplink/Downlink)
Connectivity	88	721/1442
Communications	87	90/90
CAD	79	89/714
Intranet/VPN	73	715/1430
Database	68	86/1376
Location/Mapping	65	69/2415
Reporting	64	627/627
AVL	32	102/0
Video	23	44/1405
VoIP	20	14/14
Telemetry	17	16/3

Similar to what was done for the users and devices, this predicted usage and capacity requirement can be extended to a statewide need by using the number of users reflected in the CASM database and the calculated user device numbers for each discipline.

Two different statewide extensions were created: one reflecting and estimate based on agency-issued devices only; and a second taking into account the use of personal devices where agency-issued devices are not provided. The results of these extensions are shown in the table below and the totals are graphed in the bar chart in Figure 14:

Application Type	Cumulative Datarate (Mb/s) Required MDST (UL/DL)	Cumulative Datarate (Mb/s) Required State (UL/DL)	Cumulative Datarate (Mb/s) Required State w BYOD (UL/DL)
Connectivity	721/1442	4120/8241	5185/10371
Communications	90/90	527/527	668/668
CAD	89/714	514/4114	648/5181
Intranet/VPN	715/1430	3743/7487	4500/9001
Database	86/1376	453/7250	551/8818
Location/Mapping	69/2415	394/13775	494/17300
Reporting	627/627	3578/3578	4438/4438
AVL	102/0	519/0	619/0
Video	44/1405	198/6340	214/6859
VoIP	14/14	84/84	106/106
Telemetry	16/3	276/49	439/78
TOTALS	**2573/9516**	**10828/51445**	**17922/62820**

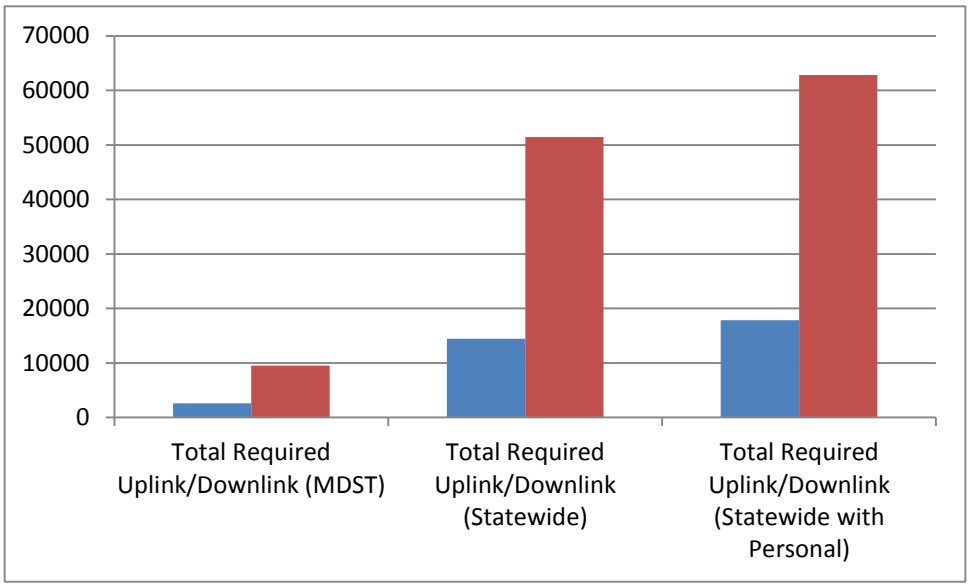

Figure 14: Cumulative Capacity Requirements

Currently, this information is shown as a cumulative requirement across the State. In order to better support a network design, the capacity needs should be distributed locally with a greater emphasis on the higher concentration areas. This can be done with further analysis by using a breakdown of the agencies on a county-by-county basis, and in some cases a further breakdown around the metropolitan areas. Michael Baker suggests the IPSC pursue this further analysis following initial consultation and in preparation for subsequent consultation meetings.

CONCLUSION AND SUMMARY

The NPSBN process dictates that FirstNet will make a proposal to the State in the form of a State Plan that describes the portion of the NPSBN that FirstNet plans to construct in the State and the business terms to utilize the network. The data collection activities are a key component of this process and will provide critical input for FirstNet to incorporate into the State Plan.

Specific recommendations that the Michael Baker team has identified include:

- Investigate why the device/user count for the focus group meetings was significantly less than the MDST responses to date;
- Thoroughly identify and quantify device usage among the Indiana stakeholder community, and the trends already taking place in some agencies around BYOD and the ever-increasing pace of multiple device use;
- Update the agency and user figures in the CASM database for specific user groups (many are zero);
- Perform a more detailed coverage analysis and solicit feedback from local responders;
- Identify special events which have a significant impact on coverage and capacity needs;
- Compare Baseline Coverage Recommendations with PSAP incident data;
- Develop recommendations for a phased network deployment;
- Incorporate capacity requirements based on application usage and high-activity areas with a regional analysis;
- Develop a .shp file for communicating coverage and capacity needs to FirstNet.

APPENDIX A: FOCUS GROUP MEETING SUMMARIES

Indiana FirstNet Focus Group Meeting
August 4, 2015 10:00 – 2:00

IVY TECH Peru, Indiana

Attendees:

David Vice	IPSC
Steve Skinner	IPSC
Sally Fay	IPSC
Ken McMullen	Michael Baker
Bill Bates	Michael Baker
Dom Arcuri	DVA Consulting

North
38 Individuals
29 Jurisdictions

- Review of First Net:
  - Poll Question 1
    - How many people are aware of what First Net is?

North
▪ All

- User Agency Information:
  - People in the room today are from what Service:

Public Safety - Service Type	
Members of Law Enforcement	9
Fire	7
EMS	3
911 - Dispatch	10
Emergency Management	10
IT	5

  - Type of Jurisdiction:

Jurisdiction Type	
County	22
Muni / Town	6
Regional	3
State	5
Multi-Jurisdiction	3

- Setting:

Urban-Suburban / Rural	
Urban-Suburban	4
Rural	30
Commercial	

- Usage:

Access / Applications		
Knowledge of FirstNet	35	
Knowledge of Surrounding Jurisdictions		
Personnel with Agency-Issued Devices	15	
Personnel Accessing Jurisdiction Network with Personal Device	27	
Texting on Personal Mobile Device - Work Related	21	
Use of Personal Device to Perform *ANY* Work Function	35	
Use of Skype or Similar OTT App.	8	
Use of Mapping App	17	
Use of Weather App	30	
Accessing News Apps / News Information	20	
Communicating with Family/Friends --- 2nd-Hand News Sourcing	17	
Use of Crowd-Sourcing Data / Apps	4	
Jurisdictions -- Text-2-911 -- ***Implemented***	13	
Use of Video --		
* On-Scene Video Cam	2	
* In-Dash Video	8	
* Personal Body-Cam / Wearable Video Cam	10	
		❷ PS ***access*** to # courtroom cams, # school cams, # News Media cams, # Stadium/Event Cams
❷ Other Video / Video Access		
❸ Drone Use (Implemented + Pending + Researching)	1	❸ Implemented or pending

- Comments:
  - Crowdsourcing data, traffic data was given as a particular use by the focus group.

Apps Identified + Apps in Use		
HAZMAT WMD	X	
PS Specific IM	X	
"Push" Messaging/911		13
Jurisdiction App for Weather Info/Alerting		3
Damage Assessment	X	
GIS		4
Jurisdication App -- Direct Paging	X	
BYOD Policy In-Place		5
BYOD - Prohibition		3
BYOD -- Limit/Restrict		0
BYOD Use		35
Mobile Records App	X	
Mobile CAD	X	
e Ticket	X	
Crash Reporting	X	
SharePoint	X	
In-vehicle devices on internet	X	
I-DAM	X	
Covrad	X	
Web EOC	X	
PTT	X	

- Comments:
  - Drone usage for crowd control and traffic reconstruction
  - PEAC software for HAZMAT situations
  - Public Safety IM 911 Inet
  - NIXel used by multiple jurisdictions (Push 911)
  - GIS (ESRI based)

Services / Services Through Providers		
Multiple Service Providers	X	
Jurisdiction policy on internet access, restricted access		2
Device limits due to technology		1
Device limits due to budget		1
Provisioning of devices in-house		17
Maintaining devices in-house		24
Software Upgrades		
Mobile Service Paid by Jurisdiction (Full or Partial)		3
"Current Network Does Not Meet Jurisd. Requirements"		9
"Current Network Limitations due to Security Reasons		6
"Agency does not have knowledge to service..."		8
"Wireless Data Network does not meet Agency Operational Req."		34

- Comments:
    - PEAC software limited by number of licensing
    - I did sheriff's dept., should 1 person do the entire county or should each service do the MDST?
        - As many first responders as possible need to fill out the survey. Updates are encouraged.
    - Notices sent to individual departments throughout the state.
    - There is a fear that individual responders will not respond because they do not have the access to the type of information requested.
        - MDST is just the beginning of data acquisition, will be open after initial consultation. This is first responders opportunity to provide input on the front end as well as throughout the process
    - Cannot attach your BYOD to network
        - What about Volunteer Departments, can they use devices.
    - Push to personal device only
    - Stipends paid to cover use of personal device
    - Police vehicles share devices with shift changes
    - Concerns have been raised that because data plans are no longer limited that either throttling or some other form of penalty will be incurred as data usage continues to expand
    - Is FirstNet going to improve coverage area? This is more of an issue than capacity to most jurisdictions.
        - FirstNet will include allowances for both Urban and Suburban to allow for coverage issues.
    - Provisioning duties depend on the end product and agreements with vendor.
    - A big concern with any network is coverage and more importantly shifting in coverage from urban to rural areas.
        - LTE class network will require more tower coverage, network wide coverage through the use of phasing in and mixing of urban/suburban areas.
    - Are you maintaining the device and not the air card?
        - General maintenance
    - Software will ping before update and upgrades are part of our contract
        - Software that is on a terminal and not on mobile device, correct?
    - Mobile device services are pushed
        - Pagers must be physically upgraded, not actually pushed
    - Are you talking about when the phone says I need to upgrade and I click yes and then restart my phone?
        - More likely that your phone is updated without anyone knowing
    - We are trying to talk our CAD folks into using a cloud based system

Provider Issues	
Data Limits	8
Capping	x
Throttling	x
Capacity Limitations at Large Events	x
Capacity when we need it?	

- Comments:
    - AT&T, Verizon, Sprint, CenturyLink, Frontier, Boost, Rochester Telephone, Comcast, Time Warner, MetroNet, LIGTEL, are common carriers.

- Verizon's data plan was thought to be unlimited, not truly unlimited
  - This is due to changes in commercial providers habits
- Multiple service providers provide for different plan limitations and competitive rates

Procurement

State QPA - Usually a better option for buying services

Jurisdictions buying off of Federal contracts

3-bidder rules

Purchasing reviews/approval by Commissioners
*Buying service for one Jurisdiction done using three different budgets – Commissioners/Sheriff/Commissary Funds (complex)

Annual budgeting a problem -- planning ahead for mobile data use

Contracts are annual, but diff with each vendor

Contracts mis-match budget process
Service month-by-month / contracts year-by-year / contract periods differ between vendors / multiple vendor relationships

Jurisdiction purchasing through state or larger institution entities

Most jurisdictions have several/multiple vendor relationships covering similar services, different services.

Price instability - year=by=year

- Comments:
  - Procurement of services comes from different funds and mechanisms
  - Contracts depend on the service provider and the level of government

Attributes of current provider / what could FirstNet offer / what would make your agency become FirstNet subscriber

Fixed Price Data Plans
Price
Unlimited Data
Coverage Throughout Jurisdiction
Good Customer Service - Availability/Access
Network Security
Annual new/upgraded devices from providers free
Guaranteed Performance
Static IP Addressing
VPN Services Unlimited
Network Notifications
Easy to Deploy Devices

Ease of Outage Reporting
Stable/Consistent Pricing
Make Better Apps part of the Service
Central Data Repository for PS throughout State
Apply VOST Concept to Statewide Operations - Shared Services
"No Contract Pricing"
Make COWS and related tech available during spec. events
Have more data/capacity available when we need it
Have network cover existing/legacy devices

- Comments:
    - Reliability of current provider
    - Options providers offer
    - Customer service is not necessarily local but is important
    - Device durability
    - Rural area coverage
        - Data network only, not to replace cell or 800 MHz

FirstNet Network Issues

Personal device access/use of new network
"Family Plan" users -- PS cost, Family Plan cost

Command structure for device access to network during different scenarios
Priority of Service / First Responder access during diff scenarios
Device access during changes in employment - leaving PS
Future Network Access / Permissions / Preemptions

Phase-in period coverage issues -- between early phase and last phase areas
Length of phase-in period
Coverage of Legacy Devices
Jurisdiction-Deployed Micro Cells at Local Level

- Comments:

Providers to PS in Indiana

AT&T, Verizon, Sprint, CenturyLink, LIGTEL, Frontier, Boost, SCI,
NuWave, Comcast, Time Warner, PDS Wireless, MetroNet,
9-Star, InDigitel,

- Comments:
    -
- Questions:

Indiana FirstNet Focus Group Meeting
August 5, 2015 10:00 – 2:00

INDOT Seymour, Indiana

Attendees:

David Vice	IPSC
Steve Skinner	IPSC
Sally Fay	IPSC
Ken McMullen	Michael Baker
Bill Bates	Michael Baker
Dom Arcuri	DVA Consulting

South
17 Individuals
14 Jurisdictions

- Review of First Net:
  - Poll Question 1
    - How many people are aware of what First Net is?

South
All

- User Agency Information:
  - People in the room today are from what Service:

Public Safety - Service Type	
Members of Law Enforcement	3
Fire	1
EMS	0
911 - Dispatch	9
Emergency Management	4
IT	6

  - Type of Jurisdiction:

Jurisdiction Type	
County	10
Muni / Town	1
Regional	0
State	2
Multi-Jurisdiction	6

- Setting:

Urban-Suburban / Rural	
Urban-Suburban	5
Rural	6
Commercial	1

- Usage:

Access / Applications	
Knowledge of FirstNet	21
Knowledge of Surrounding Jurisdictions	
Personnel with Agency-Issued Devices	11
Personnel Accessing Jurisdiction Network with Personal Device	8
Texting on Personal Mobile Device - Work Related	10
Use of Personal Device to Perform *ANY* Work Function	16
Use of Skype or Similar OTT App.	5
Use of Mapping App	14
Use of Weather App	23
Accessing News Apps / News Information	14
Communicating with Family/Friends --- 2nd-Hand News Sourcing	7
Use of Crowd-Sourcing Data / Apps	7
Jurisdictions -- Text-2-911 -- ***Implemented***	13
Use of Video --	
* On-Scene Video Cam	4
* In-Dash Video	11
* Personal Body-Cam / Wearable Video Cam	6
❷ Other Video / Video Access	
❸ Drone Use (Implemented + Pending + Researching)	0

- Comments:
  - Instagram and twitter blocked by county
  - School camera's use would be accessed
    - This could be part of the data use
    - Special events data is needed to be accounted for

Apps Identified + Apps in Use		
HAZMAT WMD	X	
PS Specific IM	X	
"Push" Messaging/911		8
Jurisdiction App for Weather Info/Alerting		7
Damage Assessment	X	

GIS		13
Jurisdiction App -- Direct Paging	X	
BYOD Policy In-Place		3
BYOD - Prohibition		2
BYOD -- Limit/Restrict		9
BYOD Use		16
Mobile Records App	X	
Mobile CAD	X	
*e*Ticket	X	
Crash Reporting	X	
SharePoint	X	
In-vehicle devices on internet	X	
I-DAM	X	
Covrad	X	
Web EOC	X	
PTT	X	

- Comments:
  - HazMat software used as secondary source of data
  - Public Safety IM 911 I-net
  - NIXel used by multiple jurisdictions (Push 911) Everbridge
  - Mobile Damage assessment program, (ESRI)
  - Direct Pager, e-dispatch; page gate
  - Teltech and various other mobile apps for weather
  - Mobile CADD and record management software are being used
  - Use of e-ticket and other services used for reporting
  - Is there a mechanism for use of other existing towers outside of existing cell infrastructure
    - LTE class systems require more towers, architecture will require new arrangements
  - Think GIS used by some jurisdictions
  - Real time video apps could be used if bandwidth were available

Services / Services Through Providers		
Multiple Service Providers	X	
Jurisdiction policy on internet access, restricted access		1
Device limits due to technology		0
Device limits due to budget		4
Provisioning of devices in-house		10
Maintaining devices in-house		4
Software Upgrades		7
Mobile Service Paid by Jurisdiction (Full or Partial)		4
"Current Network Does Not Meet Jurisd. Requirements"		6
"Current Network Limitations due to Security Reasons		0
"Agency does not have knowledge to service…"		4
"Wireless Data Network does not meet Agency Operational Req."		

- Comments:
    - IT prohibits the access to the network for personal devices in one jurisdiction
    - Due to the multiple device usage, some provisioning is done either by vendor or by jurisdiction dependent on the device
    - Maintenance is a multi-tiered process
        - Just first tier
    - Depends on the device
        - Upgrades are normally part of the agreement and are pushed to the mobile device
        - We are concerned about pushing through mobile lines, no plugin required.

Provider Issues	
Data Limits	x
Capping	x
Throttling	x
Capacity Limitations at Large Events	
Capacity when we need it?	x

- Comments:
    - Verizon provides additional coverage for IU football games
    - Some provision must be incorporated to lock in Public Safety priority, especially for non-planned occurrences.
    - Multiple service providers provide for different plan limitations and competitive rates

Procurement

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Annual budgeting a problem -- planning ahead for mobile data use

Contracts are annual, but diff with each vendor

Contracts mis-match budget process

Service month-by-month / contracts year-by-year / contract periods differ between vendors / multiple vendor relationships

Jurisdiction purchasing through state or larger institution entities

Most jurisdictions have several/multiple vendor relationships covering similar services, different services.

Price instability - year=by=year

- Comments:
    - No contract for purchase using a Federal QPA
    - Different agencies purchase under different mechanism and vendor
    - State QPA is used to avoid negotiating price

Attributes of current provider / what could FirstNet offer / what would make your agency become FirstNet subscriber

Fixed Price Data Plans
Price
Unlimited Data
Coverage Throughout Jurisdiction
Good Customer Service - Availability/Access
Network Security
Annual new/upgraded devices from providers free
Guaranteed Performance
Static IP Addressing
VPN Services Unlimited
Network Notifications
Easy to Deploy Devices
Ease of Outage Reporting
Stable/Consistent Pricing
Make Better Apps part of the Service
Central Data Repository for PS throughout State
Apply VOST Concept to Statewide Operations - Shared Services
"No Contract Pricing"
Make COWS and related tech available during spec. events
Have more data/capacity available when we need it
Have network cover existing/legacy devices

- Comments:
    - Customization of available programs
    - Options providers offer
    - Unlimited data programs are no longer unlimited, throttling occurs
    - Device upgrades at low to no cost annually
    - Secure mobile network
        - VPN for FirstNet or other private network separate from commercial networks
    - All devices having the same rate
    - Getting buy in into brand new system will be difficult
    - If there is no buy in the =n phase in will stop
        - Adequate assessment, buy in immediately will be important to develop revenue stream
        - Is phasing dependent on revenue
    - Incentive for rural entities to get buy in because the technical difficulties and revenues in those areas.

- There will be privacy concerns about data ownership on shared devices.
- Problem is partially due to the geography, infrastructure is not supportive. As the build out begins in urban, the money will run out before getting to our rural south counties. These counties are asked to buy their own towers. It is unlikely that a better system will not receive the coverage needed.
  - Originally First Net discussed the tower assets and what is available from public and private sectors. LTE systems need more towers for the same coverage. Research is being done on in vehicle, light deployable and other methods to boost signal and compensate for coverage issues.
  - Private providers do not provide coverage when it is not financially viable for them, FirstNet will not have that bottom line type issue.
- Have we looked into the best practices of surrounding states, Kentucky or Tennessee?
  - Most states are in the same relative timeline
- SPOC meetings and other collaborative meetings with FirstNet groups and FEMA region 5 states to ensure best practices are shared.

FirstNet Network Issues

Personal device access/use of new network

"Family Plan" users -- PS cost, Family Plan cost

Command structure for device access to network during different scenarios

Priority of Service / First Responder access during diff scenarios

Device access during changes in employment - leaving PS

Future Network Access / Permissions / Preemptions

Phase-in period coverage issues -- between early phase and last phase areas

Length of phase-in period

Coverage of Legacy Devices

Jurisdiction-Deployed Micro Cells at Local Level

- Comments:

Providers to PS in Indiana

AT&T, Verizon, Sprint, CenturyLink, LIGTEL, Frontier, Boost, SCI, NuWave, Comcast, Time Warner, PDS Wireless, MetroNet, 9-Star, InDigitel,

- Comments:
  - DO you want everyone in every jurisdiction to take the survey?
    - The more data provided the better.
- Questions:

Indiana FirstNet Focus Group Meeting
August 6, 2015 9:00 – 1:00

Somerset Conference Center Indianapolis, Indiana

Attendees:

	David Vice	IPSC
	Steve Skinner	IPSC
	Sally Fay	IPSC
	Ken McMullen	Michael Baker
	Bill Bates	Michael Baker
	Dom Arcuri	DVA Consulting

Central
30 Individuals
22 Jurisdictions

- Review of First Net:
  - Poll Question 1
    - How many people are aware of what First Net is?

Central
All

- User Agency Information:
  - People in the room today are from what Service:

Public Safety - Service Type	
Members of Law Enforcement	6
Fire	6
EMS	3
911 - Dispatch	9
Emergency Management	3
IT	5

  - Type of Jurisdiction:

Jurisdiction Type	
County	14
Muni / Town	9
Regional	0
State	2
Multi-Jurisdiction	1

- Setting:

Urban-Suburban / Rural		
Urban-Suburban	18	
Rural	15	
		❶ Not-For-Profit Corp. -- Emergency Med Services/Ambulance
Commercial	1 ❶	

- Usage:

Access / Applications		
Knowledge of FirstNet	32	
Knowledge of Surrounding Jurisdictions		
Personnel with Agency-Issued Devices	19	
Personnel Accessing Jurisdiction Network with Personal Device	8	
Texting on Personal Mobile Device - Work Related	16	
Use of Personal Device to Perform *ANY* Work Function	22	
Use of Skype or Similar OTT App.	13	
Use of Mapping App	28	
Use of Weather App	28	
Accessing News Apps / News Information	21	
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* On-Scene Video Cam	10	
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* Personal Body-Cam / Wearable Video Cam	5	
		❷ PS ***access*** to # courtroom cams, # school cams, # News Media cams, # Stadium/Event Cams
❷ Other Video / Video Access		
❸ Drone Use (Implemented + Pending + Researching)	5	❸ Implemented or pending

- Comments:
  - Do you mean the push of video or the capture of it?
  - Do you mean implement, as a rule or as a voluntary action?
    - For these purposes it does not matter as we are concerned with capacity not policy
  - BYOD not allowed in our jurisdiction(1)

Apps Identified + Apps in Use		
HAZMAT WMD	X	
PS Specific IM	X	
"Push" Messaging/911		24
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Damage Assessment	X	
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BYOD - Prohibition		4
BYOD -- Limit/Restrict		0
BYOD Use		22
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Mobile CAD	X	
*e*Ticket	X	
Crash Reporting	X	
SharePoint	X	
In-vehicle devices on internet	X	
I-DAM	X	
Covrad	X	
Web EOC	X	
PTT	X	

Comments:

Services / Services Through Providers	
Multiple Service Providers	
Jurisdiction policy on internet access, restricted access	17
Device limits due to technology	2
Device limits due to budget	12
Provisioning of devices in-house	21
Maintaining devices in-house	20
Software Upgrades	19
Mobile Service Paid by Jurisdiction (Full or Partial)	3
"Current Network Does Not Meet Jurisd. Requirements"	10
"Current Network Limitations due to Security Reasons	0
"Agency does not have knowledge to service…"	3
"Wireless Data Network does not meet Agency Operational Req."	14

- Comments:
    - Cell sites are pushing us off due to capacity limitations
    - We limit the content accessed not based on data limits

Provider Issues

Data Limits	x
Capping	x
Throttling	x
Capacity Limitations at Large Events	
Capacity when we need it?	x

- Comments:

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Most jurisdictions have several/multiple vendor relationships covering similar services, different services.

Price instability - year=by=year

- Comments:
  - Internal budget is yearly, no contracts
  - Jurisdictional differences occur with county vs local
  - County contracts yearly for minutes and data
  - Open purchase order, no contract per se, terms vary by carrier, budget is annual

Attributes of current provider / what could FirstNet offer / what would make your agency become FirstNet subscriber

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Unlimited Data
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Have more data/capacity available when we need it
Have network cover existing/legacy devices

- Comments:
    - Camera usage limited due to bandwidth restrictions
    - Throttling would occur if video would be accessed for real time crime monitoring, cameras, weather, sensors etc.
    - Is 100 % coverage realistic?
    - It is concerning that the state police cannot get coverage for their operations, how would local jurisdictions be able?
        - Test beads exist to research light deployable technology to provide coverage in areas where towers no longer exist or never did.
    - How would this system be better than what we have now?
        - New technology would be developed to allow boosting of coverage.
    - Who deploys the systems
        - National Guard like aviation assets
    - What about micro cell technologies?
        - They have been working on these as well as in vehicle devices
    - Is this becoming cost prohibitive?
        - We are still early in the planning phase, supported thru sale of spectrum to commercial providers when not being used for public safety.
    - Will volunteer fire departments be required to pay even if they do not use it
        - It is not designed to be a mandatory program, but this has not been discussed yet.
    - Most would be willing to pay equal to even slightly more for reliable, prioritized network.
        - This is the cruces of IPSC's argument on behalf of you.
    - Low to no cost for devices

- Rural counties are unlikely to be able to implement this program, they are currently up against the tax limit and any funding in addition would be outside the ability of most rural entities.
- Usage levels are not steady and fluctuate randomly.
- We would not like a company to come in and make business decisions for our jurisdictions

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INDOT Seymour, Indiana

Attendees:		
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	Bill Bates	Michael Baker
	Dom Arcuri	DVA Consulting

State
5 Individuals
5 Jurisdictions

- Review of First Net:
  - Poll Question 1
    - How many people are aware of what First Net is?

State
All

- User Agency Information:
  - People in the room today are from what Service:

Public Safety - Service Type	
INDOT	1
IDHS	1
Dept. of Corrections	1
State Prosecutors Office	1
IDHS	1
INDOT	1

- Potential for Prosecutors office to use FirstNet

- Usage:

Access / Applications	
Knowledge of FirstNet	5
Knowledge of Surrounding Jurisdictions	
Personnel with Agency-Issued Devices	5
Personnel Accessing Jurisdiction Network with Personal Device	8
Texting on Personal Mobile Device - Work Related	
Use of Personal Device to Perform *ANY* Work Function	
Use of Skype or Similar OTT App.	5
Use of Mapping App	5
Use of Weather App	5
Accessing News Apps / News Information	5
Communicating with Family/Friends --- 2nd-Hand News Sourcing	7
Use of Crowd-Sourcing Data / Apps	3
Jurisdictions -- Text-2-911 -- ***Implemented***	
Use of Video --	
* On-Scene Video Cam	
* In-Dash Video	1 !
* Personal Body-Cam / Wearable Video Cam	
❷ Other Video / Video Access	
❸ Drone Use (Implemented + Pending + Researching)	

- Comments:
  - With VPN can access network
  - Is spirit of this an App or more like satellite phones?
    - Only thing we have in common is what we have today, it is difficult to say what will be used 5-7 years down the road.
    - FirstNet is an LTE spectrum prioritized for Public Safety.
  - Is this a full time service?
    - Yes there will be a full time service and additional prioritized bandwidth during emergencies.
  - There is essentially no difference between regular data network of today which is shared and the FirstNet except the prioritization and the dedicated spectrum.
    - The 20 MHz of dedicated spectrum for Public Safety as well as the prioritized device/access during emergency scenarios.
    - State fair collapse demonstrated the inadequacies of cell service in such an accident. EMS with air cards were also restricted as the overload of the system occurred.
    - Expanded the definition of First Responders.
  - Cost effectiveness, FirstNet does not add any money to our resources, will it then make our staff more efficient?
    - Needs to be addressed during consultation

- Will the data be value added?
- BGAN usage is very expensive means of getting information when normal systems fail
- Will FirstNet develop applications?
  - Yes, in terms of early planning
  - Public Safety Grade devices as well
- Data usage for EMS could save several minutes off rescue runs could provide large dividends
  - About 186 Apps already available.
- INDOT bridge Inspectors using iPads for inspections and using the Cloud for storage
  - Network should be able to funnel information to first responders.
- Market will blossom, live 12 lead data from field for EMS, data capabilities will be great.
- DOC looking at "Man down Systems" and vehicle tracking.
  - If you could lock individual devices down would that be helpful
- DOC looking at drone usage
- DOC could use offender monitoring and work crews.
- ISDH would benefit from ability to respond and transfer data in rural areas or disaster response.
- Could you access MIFI through this new System
  - Both are LTE class but different band
- It would be great if the devices were dual band, and will switch between FirstNet and Commercial
- INDOT bridge sensors over the cell network, as well as integrated winter operations going over the cell network, ITS and DMS systems over both cell and fiber optic system.
- GIS sent to response elements
  - Geofencing

Procurement

State QPA - Usually a better option for buying services

Jurisdictions buying off of Federal contracts

3-bidder rules

Purchasing reviews/approval by Commissioners

*Buying service for one Jurisdiction done using three different budgets -- Commissioners/Sheriff/Commissary Funds (complex)

Annual budgeting a problem -- planning ahead for mobile data use

Contracts are annual, but diff with each vendor

Contracts mis-match budget process

Service month-by-month / contracts year-by-year / contract periods differ between vendors / multiple vendor relationships

Jurisdiction purchasing through state or larger institution entities

Most jurisdictions have several/multiple vendor relationships covering similar services, different services.

Price instability - year=by=year

Attributes of current provider / what could FirstNet offer / what would make your agency become FirstNet subscriber

Fixed Price Data Plans

Price

Unlimited Data

Coverage Throughout Jurisdiction

Good Customer Service - Availability/Access

Network Security

Annual new/upgraded devices from providers free

Guaranteed Performance

Static IP Addressing

VPN Services Unlimited

Network Notifications

Easy to Deploy Devices

Ease of Outage Reporting

Stable/Consistent Pricing

Make Better Apps part of the Service

Central Data Repository for PS throughout State

Apply VOST Concept to Statewide Operations - Shared Services

"No Contract Pricing"

Make COWS and related tech available during spec. events

Have more data/capacity available when we need it

Have network cover existing/legacy devices

FirstNet Network Issues

Personal device access/use of new network

"Family Plan" users -- PS cost, Family Plan cost

Command structure for device access to network during different scenarios

Priority of Service / First Responder access during diff scenarios

Device access during changes in employment - leaving PS

Future Network Access / Permissions / Preemptions

Phase-in period coverage issues -- between early phase and last phase areas

Length of phase-in period

Coverage of Legacy Devices

Jurisdiction-Deployed Micro Cells at Local Level

Providers to PS in Indiana

AT&T, Verizon, Sprint, CenturyLink, LIGTEL, Frontier, Boost, SCI, NuWave, Comcast, Time Warner, PDS Wireless, MetroNet, 9-Star, InDigitel,